

Alloyed Forces

Alcoa Celebrates History, Today's Advances

By Matt L. Ottinger

When Alcoa's Warrick Operations plant in Newburgh opened in 1960, employees in southwestern Indiana were ready to get to work. The region's economic hardships had seen major manufacturers recently close or scale down production. Alcoa's new 150,000-ton-per-year smelter not only produced a metal supply for many of the nation's manufacturers, it also helped lay a foundation of stability for local workers.

"At the time, it was listed as Indiana's first aluminum smelter," conveys Jim Beck, communications and public affairs manager for Alcoa Warrick Operations. "That gave inference that there would be more in Indiana, but we remain the only aluminum smelter in Indiana today."

Beck notes that Warrick's is one of only eight smelters in the United States and is currently the largest in operation with 269,000 metric tons of metal per year – or 1.6 million pounds of molten metal produced by the company's five pot lines.

"Just the smelting story alone would be impressive, but the history goes beyond that," he adds, pointing out that in 1964 – only several years after the pot rooms and smelting operation were christened – Alcoa added a rolling mill and its first coils of flat-rolled aluminum were soon bound for American can producers.

"Since that time we have transformed the beverage industry," he says. "At the time, folks were still drinking beer and soda from tin cans, and Alcoa developed Warrick Operations to transform consumer packaging to aluminum. Now it's the de facto standard for beverages."

Beck explains that Alcoa Warrick Operations also produces metal for food containers – both human and pet food – as well as lithographic plates for the offset printing industry. While only operating in the latter area for about four years, its customers already include industry leaders AGFA, FujiFilm and Kodak. Alcoa Warrick Operations is the only North American supplier of high-quality metal for the lithographic industry.

Full metal innovation

According to Thomas Jefferson National Accelerator Facility (Jefferson Lab) annals, Charles Martin Hall invented the modern aluminum production process in 1889 – about the same time he founded the company in Pittsburgh that would later become Alcoa (which was previously an abbreviation for Aluminum Company of America). Until that time, aluminum had been considered a precious metal. Although it was the most abundant metal in the earth's crust, it was never discovered freely in nature; it was always part of a compound. Hall's process, however, which passed an electric current through a non-metallic conductor, was able to separate the conductive aluminum.

By 1914, Hall's brainchild helped bring the cost of aluminum down to 18 cents per pound – removing its "precious metal" status.

"(Hall) developed the process to make aluminum, then developed markets for it," Beck recounts. "We continue that today. Rather than just provide metal, we have technical experts who work hand in hand with our customers."

The Warrick facility, which includes just under 2,000 employees, uses a coal-fired power plant, aluminum smelter with five operating pot lines and a casting facility. It takes molten metal and casts it into ingots, which are as long as a school bus and can weigh around 40,000 pounds. The ingots are then rolled to reduce thickness – from two feet thick down to that of 10 sheets of paper. Beck quips that the process ends with a coil of aluminum that would be more than six



While the core product has remained the same from 1966 (top photo) until today, Alcoa has successfully found ways to expand its usage with flat-rolled aluminum for bottles and lithographic sheets.

miles long if unwound.

"It's a very integrated process from beginning to end," he summarizes.

Pressing on

While Alcoa may have played a key historical industry role, the company today is far from stagnant. Among recent innovations, Alcoa has patented aluminum bottle-forming technology and metal for that product is being produced at Warrick.

"Miller (Brewing Company) uses a 16-ounce resealable bottle with our technology," Beck notes. "There's also a bottle that's 8.5 fluid ounces (using sheet-based metal)."

And while the company continues to gainfully employ large numbers of Hoosier workers, Alcoa – like all companies – had to become introspective during the economic crash of 2008.

"(At that time) metal prices made a significant drop," Beck remembers. "Everyone came together to think of innovative ways to control costs. With aluminum prices dropping so dramatically, it was important for everyone to help make the

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– Jim Beck



The potrooms are the heart of the smelting process, producing molten aluminum.

process sustainable. Many smelters were losing money for every pound of aluminum they produced."

He adds, "Employees became very engaged to come up with ways to improve processes. It was impressive to see people rally together to lead us through that. One thing that resulted is that type of learning about cost conservation continues now even after the crisis."

The company continues to innovate and develop, making the most of its surroundings.

"We own our own coal reserves," Beck explains. "We have a mine in Southern Illinois and are developing surface mines in Warrick County. Coal feeds our power plant, the power plant supplies our smelter and the smelter provides molten metal to our rolling facility."

Fifty years after its inception, metal from Warrick Operations now makes its way into just about every home, office or facility in the United States, in one form or another.

"There's probably not a place in the world with a can somewhere that wasn't produced with metal from Warrick Operations," Beck concludes.

INFORMATION LINK

Resource: Jim Beck, Alcoa Warrick Operations, at www.alcoa.com/warrick

Alcoa Divisions Make Statewide Impact

In addition to Warrick County, Alcoa boasts Indiana operations in Auburn, Lafayette and LaPorte. Its Auburn facility produces aluminum parts for major automobile companies, while its Lafayette division focuses on parts for the aerospace and oil and gas sectors.

According to Cary Dell, communications manager for Alcoa Power and Propulsion, the Alcoa Howmet (LaPorte) operation opened in 1957 when it was part of Misco (owned by Consolidated Foundries). Misco was acquired in 1958 by Howmet Sound, which changed its name in 1965 to Howmet Corporation (the forerunner of Alcoa Howmet when it was acquired by Alcoa in 2000).

The LaPorte plant remains an investment casting operation, where metals are poured into molds to produce parts for jet engines and other aerospace-related products. The company prides itself on improving efficiency and performance for the

world's leading manufacturers of aerospace propulsion systems. Additionally, the Alcoa Howmet facility provides parts for the industrial gas turbine industry.

"We now use more automated methods in production," explains Dell, when describing how processes have changed over the years. "We pride ourselves in being able to produce complex castings, which are the most difficult to manufacture."

Dell relays that Alcoa Howmet has two operations in LaPorte (employing around 500 people), including the investment casting operation and logistics services, which provides product transportation among U.S. facilities.

Alcoa Howmet customers include Honeywell International, Pratt & Whitney, Rolls-Royce and General Electric. The facility also indirectly provides castings for military systems.

Resource: Cary Dell, Alcoa Howmet, at www.alcoa.com/howmet